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ABSTRACT

"Mapping" is a note-taking technique by which students use visual cues to isolate, emphasize, and group information meaningfully. Features of this technique include: organizing the note page laterally, so that general topics are on the left side and supportive information is on the right side; separating topics by horizontal lines; circling or boxing the divisions within topics; and using other visual cues that help to describe processes, functions, and compared or contrasted ideas. Mapping is an especially useful technique for dealing with complex written information, while mathematics and other problem courses benefit from simple mapping applications. (Illustrations of the mapping technique are provided, showing how it can be used to outline information from lectures and books and to prepare material for formal essays.) (RL)

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MAPPING THE IDEA: A NOTETAKING SYSTEM

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The attempt to visually describe a concept is not a new phenomena; this is essentially the task of much of what we now interpret as the merely decorative elements of imagery ranging from cave paintings to medieval illustration. Centuries ago, when a message was to be communicated to the unlettered, as in the sculpture and stained glass windows of Chartres, ideas were visually interpreted and reinforced. In a number of ways since, the visual mode has been utilized to perform rhetorical functions. Diderot, in his elegant 17th century encyclopedia illustrations, used diagrammatic drawings to demonstrate the steps in complex technological processes. Similarly, the invention of maps in the 15-16th centuries, claimed by Marshall McLuhan to be a change more revolutionary than any of us can imagine (7:145), visually transmitted instructions and information across language barriers. The economies of print and

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the need for mass instruction, combined with a suspicion that illustrations were somehow distracting, (7:147) contributed to a temporary decline in visual reinforcement of information. In the past thirty or so years several influences have joined to shift our priorities, however. Research in special education, especially the work in remedial reading by Fernald (4), Frostig (5) and the work in the area of learning disabilities by such persons as Vallet (11) has demonstrated the importance of visual orientation to the development of successful learning capacity.

Filmmakers and the innovators of Sesame Street and other educational enterprises have made use of visual interpretation and reinforcement of cognitive messages. At the college level, considerable research in learning has suggested that an active learning strategy, one that involves the student in the manipulation of information, is an important preparation for academic success. Butcofsky found, among University of Delaware students, one half of the freshmen had problems related to poor notetaking habits (2). The conversion of information to be learned into visually memorable form or mapping, therefore seems to be a study technique worth teaching. It is our experience at the University of Idaho that mapping information can be a regular part of study skills instruction in notetaking.

The writing of notes across a page in close, vertical lines, in imitation of print, has no functional or educational justification; the usual notes are simply a copy of the letter placement style most economical for printers. We can remind our students

and ourselves that paper has a modest cost in comparison to the importance of good notes in aiding recall. The primary value in good notes is creating a memorable, quickly comprehendable record rather than using space economically. Space should serve the function of isolating, emphasizing and grouping information meaningfully.

The first step in note mapping is the overall organization of the note page. Utilizing a two column division of notes based upon the Cornell method suggested by Palmatier (8) and advised by Pauk (9), students begin by separating a left hand topic column from the body of the notes. Each new topic is separated from others by a horizontal line across the page. Any divisions of the topic into stages, levels, parts, classes or kinds are emphasized by boxing or circling the word that names the division. If the topic were the parts of the personality as interpreted by Freud, for instance, the words "ego", "id" and "superego" would be circled on the right hand column of the notes. Illustration of comparisons or contrasts can be recorded by paralleling similar kinds of information, graphing information under headings as in the example of "future energy sources" given in figure 1.

Processes and functions, an important part of lecture and textbook notes, benefit from mapping. Notes should not only record action by noting verbs and their object but should visualize action whenever possible. The student should first simplify the language of the text or select the essential part of the lecturer's description, then box or draw a circle around

nouns. Arrows can be used to indicate the action taking place and the direction of the action (see figure 2).

Mapping is especially appropriate for visualizing relationships between parts of a whole or the consequences of an action. The circled name of a hormone, directed by an arrow to the boxed word "kidney" is a more memorable representation of the process than a sentence explaining the connection. Students sometimes attempt to recreate an instructor's illustration with too great an accuracy; a better strategy is to consider the illustration as the diagram of a function, and to simplify the drawing for the purpose of notes.

Mathematics and other problem courses also benefit from simple mapping applications. The student's task is to reproduce, in his or her notes, a sample problem demonstrated either in the text or in lecture. "Given" data required to work the problem is listed in the topic column; the work for each step in the calculations, in the right hand column, is boxed together. The boxes act to organize all data necessary to each step and act as a memory cue to students during the test. Placing the "givens" in the left column allows the student to review by placing a scratch sheet of paper over the right hand side. The student then reviews by reworking the problem, uncovering the boxed steps as he or she proceeds, checking the accuracy. This recreates the test situation and gives the student immediate feedback on difficulties likely to be encountered.

The primary differences between lecture and book notes are strategies related to time. The student listening to a lecture cannot afford the time required to visualize a complex idea. In

many such classes the primary strategy of the student may be a modification of outlining, bracketing parallel items in a sentence, for example, rather than writing straight across the page (figure 3.)

Graphic illustration is an especially useful technique for dealing with complex written information. Few forms of writing are more puzzling to students than formal essays. Because the essay has a predictable structure, with one central idea and a limited number of subordinate development topics, it lends itself well to a mapping format suggested by Evelynn Wood and Hanf (6). Essentially, the map is a core outline which makes the main topic of the essay visually as well as literally central to the notes (figure 4). Developmental topics become major radiating arms. Students add to the outline as they read; in an inductive essay the center core thesis would be added after the paragraph topics. Details or examples illustrating each paragraph are noted briefly under the paragraph topic label. Students are able to perceive the author's development (or lack of it) and can transfer this understanding directly to outlining their own essays utilizing the same core outline format. Preparation of the essay can begin without a thesis; the student can brainstorm for examples or subordinate ideas related to a subject, group similar ideas on the radial arms, then label paragraphs. The final step would be devising a thesis statement central to all developed aspects of the subject. Essay paragraph patterns, such as those suggested by Troyka and Nudelman (10) help students find appropriate topics for paragraphs. Pattern ideas are especially useful when paragraph

topics have been assigned without regard for the student's own interest or experience. An assigned essay on the subject that "grades are an aid to education," for instance, could be developed in a time order sequence, with elementary, secondary and college paragraph.

The core outline helps the student order paragraphs in the rough outline stage. Similarly, weak development will be apparent in the sparsity of examples listed under each topic. A major defect in essay structure, the lack of central theme, can be easily checked by the student at this early writing stage, as each topic and example must lead directly back to the "core," or thesis statement.

The importance of organizing and mapping information into notes can hardly be over-emphasized for students. Too often, students view the learning task as one of absorbing information, or memorizing. In fact, as Ausubel has reported, learning is much more a matter of discriminating one piece of information from another, then comparing and relating these pieces of information and applying them to new situations (1). Mapping can be one step in the process of showing students how to learn.

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Social Problems	Energy Scarcity		Feb 2
Future sources of energy	coal	sun-solar	nuclear
materials availability	available cheap	abundant cheap	available costly
disadvantages	dirty, polluting	limited technology	'hot'waste disposal

figure 1 Grouping for comparison-contrast.

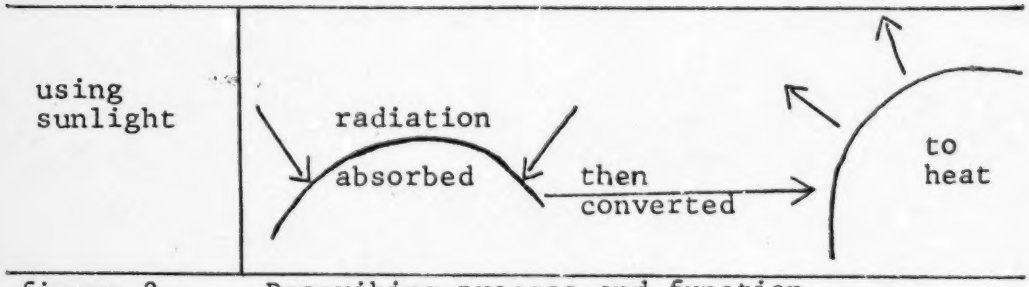

figure 2 Describing process and function.

Logic	Syllogistic Argument	Nov 12
categorical sentence	sentence with:	
	qualifier: all / no / some	copula: are / are not
		predicate

figure 3 Lecture note bracketing.

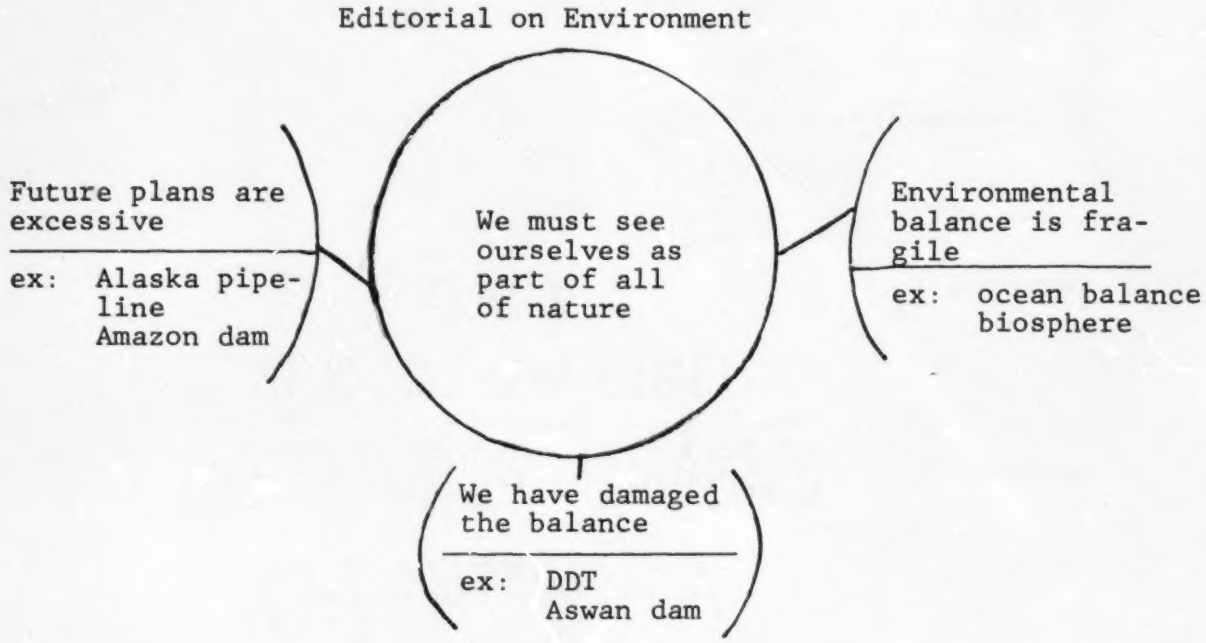

figure 4 Essay core outline.